

indicate extensive infarction other findings occurred preponderantly in the fatal group. Among these were: electrocardiographic characteristics of combined anterior and posterior infarction, progressive changes other than the usual serial S-T and T evolution, electrical alternans, very low voltage of the QRS complex, prolongation of the Q-T interval, depression of the P-R interval and P changes suggesting associated auricular infarction, major arrhythmias such as auricular fibrillation, ventricular tachycardia and heart block and sinus tachycardia exceeding 110. Mention is made of other electrocardiographic findings which have been found to accentuate the gravity of acute myocardial infarction, such as Q and T changes in multiple chest leads and high P waves which appear to be associated with acute cardiac decompensation.

Among fatal cases of acute myocardial infarction over 80 per cent exhibited one or more of the findings described while in surviving cases the majority presented the simple anterior or posterior pattern. No significant difference was found in the incidence or mortality of anterior and posterior infarction *per se*.

RELATIVE EFFECTIVENESS OF VARIOUS DIURETICS IN CAUSING SODIUM EXCRETION IN PREGNANT WOMEN

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Patients in the last trimester of pregnancy have been placed on diets which furnished a constant intake of sodium and twenty-four-hour urine collections have been made for several weeks. After adequate periods of control observations, diuretic agents were administered and their effect of urine volume and sodium elimination were determined.

Mercurial diuretics (mercuhydrin and salyr-gan) cause a marked loss of sodium chloride. This is accomplished by maintaining a relatively high concentration of sodium in the urine together with an increased urine volume. The sodium depletion after the administration of a mercurial drug may be so great that dietary

sodium is retained for a day or two in order to replenish the body stores.

Ammonium chloride in doses of 8 to 16 Gm. per day causes an acidosis in which sodium is eliminated in the urine. The initial effects may be more marked than those obtained on the second and third days so that prolonged treatment is relatively ineffective in causing a continuous loss of sodium. Urine volumes are not consistently increased.

Two hundred grams of glucose was administered intravenously in volumes ranging from 400 ml. to 4,000 ml. The effect on urinary volume is directly related to the volume of solution injected rather than to the concentration of the glucose. In no instance was the urinary volume increased sufficiently to account for all of the administered fluid. With increased urine volume there is a marked drop in sodium concentration so that no increase in sodium excretion could be demonstrated.

Aminophylline in large doses (7.5 gr. three times a day) has an effect similar to that of the mercurials, in that relatively high concentrations of sodium are maintained in the urine during the periods of increased volume output.

In two patients with toxemia of pregnancy, intravenous glucose solutions did not mobilize tissue fluids or sodium, whereas there was a marked increase in urine volume, sodium excretion and a loss of weight when they were given a mercurial drug. One eclamptic patient was given aminophylline after a six hour interval of anuria; a progressive diuresis started within one hour and the urine contained high concentrations of sodium.

FUNCTION OF THE STOMACH AS OBSERVED IN FISTULOUS HUMAN SUBJECTS, WITH SPECIAL REFERENCE TO THE ACTION OF DRUGS AND THE EFFECTS OF VAGOTOMY

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A human subject with a gastric fistula larger than that of Alexis St. Martin was studied in detail continuously for over five years. The

Abstracts

effects on the stomach of a large number of drugs and chemical agents were determined on this subject as well as on two other fistulous individuals. One of the latter was studied before and after bilateral supradiaphragmatic vagotomy.

The data obtained fell into five categories, allowing of the following inferences:

1. Secretory and motor activity in the stomach usually parallel one another and these gastric functions correspond closely to the blood flow through the organ. Drugs which inhibit gastric function induce a state of pallor and deturgescence in the stomach; drugs which stimulate gastric activity on the other hand give rise to hyperemia and turgidity of the membrane.

2. The gastric mucous membrane is remarkably resistant to trauma during pallor and relative inactivity of the stomach. With hyperemia and engorgement, however, the membrane becomes far more vulnerable to physical insult, erosions and bleeding points resulting readily from minor traumas. When hyperemia and engorgement are intense and sustained a lowering of the pain threshold occurs so that ordinarily painless gastric contractions become painful.

3. By virtue of its protective covering of mucus the gastric mucosa, even when red and turgid, is comparatively resistant to the action of caustic chemical agents. It was found that various drugs, including emetics commonly

thought to be gastric irritants, actually do not exert an irritant effect on the stomach. Locally acting emetics exert their effects after passage into the duodenum.

4. Following vagotomy the stomach remained pale and inactive for several weeks. Slight hyperemia followed the ingestion of food but situational stimuli provocative of conflict with anger and resentment, accompanied by intense gastric hyperemia before operation failed to induce such a change after the vagus innervation had been interrupted.

5. In general, the effects on the stomach of a given quantity of any drug could not be predicted without reference to the prevailing state of the organ. Gastric inhibitors, for example, whose effects were readily demonstrable when the stomach was in an average state of engorgement and activity exerted no detectable effect when the stomach was turgid and over-active. Situational stimuli provocative of emotional changes were found to be of great importance in determining the state of the stomach. Profound alterations in gastric function associated with troublesome symptoms repeatedly followed the administration of placebos. Thus, the actions of the various drugs tested depended in large measure upon whether they reinforced or opposed the other influences acting at the same time.